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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,327	03/29/2004	Paul James Broyles III	200313477-1	2718

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FORT COLLINS, CO 80527-2400

EXAMINER

CHERRY, STEPHEN J

ART UNIT	PAPER NUMBER
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2863

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/812,327	BROYLES ET AL.	
	Examiner	Art Unit	
	Stephen J. Cherry	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-11,13,18,20-22,25 and 29-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11,13,18,20-22,25 and 29-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3-29-2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-6, 8-11, 13-16, 18, 20-22, 25, and 29-32 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,134,667 to Suzuki et al.

Claim 1 discloses a method for cooling a storage device contained in a computer, the method comprising:

measuring the temperature of the storage device using a temperature sensor provided in or on the storage device in response to commands received by a storage device driver stored in memory of the computer ('667, col. 6, line 18, driver is program of one-chip microcomputer described); and

adjusting computer operation so as to reduce the temperature of the storage device if that temperature is deemed to be too high ('667, col. 5, line 60).

Claim 3 discloses a method wherein measuring the temperature of the storage device comprises measuring the temperature of the storage device using a thermal diode of the storage device ('667, fig. 1, sensor a-c).

Claim 4 discloses a method wherein adjusting computer operation so as to reduce the temperature of the storage device comprises increasing the speed of a fan contained within the computer ('667, col. 6, line 28).

Claim 5 discloses a method wherein adjusting computer operation so as to reduce the temperature of the storage device comprises adjusting the operation of a processor contained within the computer ('667, fig. 9, CPU speed).

Claim 6 discloses a method wherein adjusting the operation of a processor comprises reducing the clock speed of the processor ('667, fig. 9, CPU speed).

Claim 8 discloses a method wherein adjusting computer operation so as to reduce the temperature of the storage device comprises shutting down the computer ('667, col. 3, line 66 and col. 8, line 11).

Claim 9 discloses a method wherein adjusting computer operation so as to reduce the temperature of the storage device comprises first increasing the speed of a fan contained in the computer and, if the storage device is later determined to still be too hot, reducing one or both of a clock speed of and a voltage provided to a processor contained in the computer and, if the storage device is still later determined to be too hot, shutting down the computer ('667, fig. 11 and col. 10, line 52).

Claim 10 discloses a method further comprising accessing data regarding temperature operating parameters of the storage device and using that data to determine whether the storage device is or is not too hot ('667, fig. 7 and temperature).

Claim 11 discloses a method for cooling a storage device contained in a computer, the method comprising:

periodically measuring the temperature of the storage device with a temperature sensor provided in or on the storage device in response to commands received by a storage device driver stored in memory of the computer ('667, col. 6, line 18, commands are of program of one-chip microcomputer described); and

periodically providing temperature data including the measured temperature and temperature operating parameters for the storage device to a basic input/output system (BIOS) so that the BIOS can control operation of the computer in an effort to cool the storage device ('667, col. 5, line 60 and col. 5, line 26).

Claim 13 discloses a method wherein periodically measuring the temperature of the storage device comprises measuring the temperature of the storage device using a thermal diode ('667, fig. 1, sensor a-c).

Claim 14 discloses a method wherein periodically providing temperature data comprises providing the data to a storage device driver of the computer that provides the data to the BIOS ('667, fig. 1, sensor a-c).

Claim 15 discloses a method wherein periodically providing temperature data comprises providing information regarding an ideal temperature operating range and a critical temperature to the BIOS ('667, fig. 7 and temperature).

Claim 16 discloses a system for cooling a storage device in a computer, the system comprising:
means provided in or on the storage device for measuring the temperature of the storage device, the means being directly associated with the storage device ('667, fig. 1, sensor a-c and col. 2, line 10);
means comprising a controller of the storage device for sending the measured temperature ('667, col. 6, line 17, one-chip microcomputer); and
means for adjusting operation of the computer in relation to the measured temperature ('667, col. 5, line 60).

Claim 18 further discloses a system, wherein the means for measuring comprise a thermal diode ('667, fig. 1, sensor a-c).

Claim 20 further discloses a system, wherein the means for adjusting operation of the computer comprise a basic input/output system (BIOS) ('667, col. 5, line 60 and col. 5, line 26).

Claim 21 further discloses a system, wherein the BIOS is configured to increase the speed of a fan contained in the computer, reduce one or both of a clock speed of and a voltage provided to a processor contained in the computer, or shut down the computer if the storage device is too hot ('667, fig. 11 and col. 10, line 52).

Claim 22 discloses a system stored on a computer-readable medium, the system comprising:

logic stored in memory of the storage device configured to read a temperature of a storage device measured by a temperature sensor provided in or on the storage device ('667, fig. 1, ref. 16 and col. 6, line 17, one-chip microcomputer);

logic of a storage device driver configured to command the logic configured to read a temperature to read that temperature ('667, fig. 1, 18 and col. 6, line 17); and

logic configured to receive the read temperature and to control operation of a computer relative to the read temperature ('667, col. 5, line 60).

Claim 25 further discloses a system wherein the logic configured to receive the read temperature and to control operation of a computer comprises a computer basic input/output system (BIOS) ('667, col. 5, line 60 and col. 5, line 26).

Claim 29 further discloses a method, wherein the storage device is one of a floppy drive, an optical drive, or a hard drive ('667, fig. 1, sensor b).

Art Unit: 2863

Claim 30 further discloses a method, wherein the storage device is one of a floppy drive, an optical drive, or a hard drive ('667, fig. 1, sensor b).

Claim 31 further discloses a system, wherein the storage device is one of a floppy drive, an optical drive, or a hard drive ('667, fig. 1, sensor b).

Claim 32 further discloses a system, wherein the storage device is one of a floppy drive, an optical drive, or a hard drive ('667, fig. 1, sensor b).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,134,667 to Suzuki et al in view of U.S. Patent 6,415,388 to Browning et al.

The claim recites, as disclosed by Suzuki:

measuring the temperature of the storage device using a temperature sensor provided in or on the storage device in response to commands received by a storage device driver stored in memory of the computer

Art Unit: 2863

('667, col. 6, line 18, driver is program of one-chip microcomputer described);

adjusting computer operation so as to reduce the temperature of the storage device if that temperature is deemed to be too high ('667, col. 5, line 60);

wherein adjusting computer operation so as to reduce the temperature of the storage device comprises adjusting the operation of a processor contained within the computer ('667, fig. 9, CPU speed);

However, Suzuki does not disclose reducing voltage to the processor.

The claim further recites, as disclosed by Browning:

wherein adjusting the operation of a processor comprises reducing a voltage provided to the processor ('388, fig. 6, ref. 350).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the voltage reduction of Browning with the invention of Suzuki to allow operation at lower power consumption levels (see '388, col. 4, line 66).

Response to Arguments

Applicant's arguments filed 10-31-2006 have been fully considered but they are not persuasive.

Regarding claims 1, 3-6, 8-10, and 29, applicant argues that Suzuki does not teach temperature sensors in or on a storage device; however, '667, fig. 1 depicts

Art Unit: 2863

temperature sensors a-c on CPU 11, HDD 19, and controller 20, each of which are storage devices. The sensors are located inside the enclosure of the device, which is another sort of storage device as a whole. Applicant further states that the temperature is not measured in response to commands of a storage device driver, however, the software of 16 is considered to be a storage device driver because ref 16 is part of a storage device, and is, in itself a storage device. Applicant further argues the content of one line of the disclosure; however, the reference must be interpreted as to what it teaches as a whole. Applicant states that Suzuki does not teach shutting a computer down; however, the stop clock state is considered as "shut down" because the operation of the computer is stopped. Applicant further states that a sequence of actions is not taken; however this is indicated in figure 11 because the temperature of the system as increasing would cause the sequence of fan and CPU settings to occur.

Regarding claims 11, 13-15, and 30, applicant argues that Suzuki does not teach temperature sensors in or on a storage device; however, '667, fig. 1 depicts temperature sensors a-c on CPU 11, HDD 19, and controller 20, each of which are storage devices. The sensors are located inside the enclosure of the device, which is another sort of storage device as a whole. Applicant further states that the temperature is not measured in response to commands of a storage device driver, however, the software of 16 is considered to be a storage device driver because ref 16 is part of a storage device, and is, in itself a storage device. Applicant further argues that the data is not provided to a basic input/output system, however, the software of controller 16 that controls the input and output of the device is considered to be a basic input and

Art Unit: 2863

output system because the software controls the operation, of inputs and outputs of the device.

Regarding claims 16, 18, 20, 21 and 31, applicant argues that Suzuki does not teach temperature sensors in or on a storage device; however, '667, fig. 1 depicts temperature sensors a-c on CPU 11, HDD 19, and controller 20, each of which are storage devices. The sensors are located inside the enclosure of the device, which is another sort of storage device as a whole. Applicant states that Suzuki does not teach means for shutting a computer down; however, the stop clock state is considered as "shut down" because the operation of the computer is stopped.

Regarding claims 22, 25, and 32, applicant argues that Suzuki does not teach logic for temperature sensors in or on a storage device; however, '667, fig. 1 depicts temperature sensors a-c on CPU 11, HDD 19, and controller 20, each of which are storage devices. The sensors are located inside the enclosure of the device, which is another sort of storage device as a whole. Applicant further states that the temperature is not measured in response to commands of logic if a storage device driver, however, the software of 16 is considered to be a storage device driver because ref 16 is part of a storage device, and is, in itself a storage device. Applicant further argues that the data is not provided to a basic input/output system, however, the software of controller 16 that controls the input and output of the device is considered to be a basic input and output system because the software controls the operation, of inputs and outputs of the device.

Regarding claim 7, applicant does not state which specific claimed elements are not taught by the prior art.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

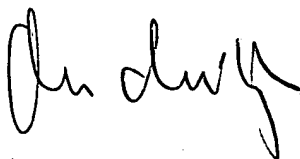
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Cherry whose telephone number is (571) 272-2272. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2863

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SJC


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